

Remarks

Favorable reconsideration in view of the herewith presented amendment and remarks is respectfully requested.

Claims 23-55 are pending in this application. Claims 41-55 are cancelled.

The drawings are objected to under 37 C.F.R. §1.83(a). Applicants do not believe any correction to the drawings is required as explained below.

Applicants disagree with the Examiner that Fig. 11 does not show a conical cutting surface 426. It is believed that the Examiner reading the drawing wrongly. The Examiner's attention is directed to Fig. 15 where one may clearly see a conical cutting surface 726. Fig. 15 does not, however, show the rounded outer surface required by claim 24. The convention used in drafting this application is to identify features common to the different embodiments with the same reference numeral and then to add different initial reference numerals to distinguish between the different embodiments. Thus, the reference numeral 726 in Fig. 15 refers to the conical cutting surface 26 in just the same way as the reference numeral 426 in Fig. 11. If one now looks again at Fig. 11 one will see that it is to a significantly smaller scale than Fig. 15 and this means that the two horizontal lines, which define the upper and lower boundaries of the conical surface, have merged into a single thick black line. This thick black line is considerably thicker than other lines used in Fig. 11, precisely because it is identifying the conical cutting surface rather than a simple outline. Thus, the horizontal line to which the reference numeral 420 is directed to the right of the central axis 424 shows the lower edge of the element and is significantly thinner than the double line to which the reference numeral 426 points.

The Examiner also objects that the drawings do not show the threaded inner surface of the shaft, functional element formation as a cold-formed part, and thread formation by rolling or compression forming.

So far as the threaded inner surface of the shaft is concerned the Examiner's attention is directed to reference numeral 412 in Fig. 11. The double vertical lines with cross-hatching different from the cross-hatching adjacent to the reference numeral 414, is an internationally accepted way of showing a thread 412 in a technical drawing. The female thread 412 is referred to, for example, in the first two lines on page 15. Accordingly, this objection is not soundly based.

Applicant questions whether the drawings need to show functional element formation as a cold-formed part or thread formation by rolling or compression forming. The manufacture of functional elements as cold-formed parts and the formation of threads by rolling or compression forming are completely standard techniques in the art and well known to every practitioner in the art. It is believed that it is sufficient simply to state that the elements and the thread are formed in this way.

The Examiner is respectfully requested to reconsider and withdraw the objection to the figures.

Claim 33 is objected to because of informalities. Claim 33 have been amended using the Examiner's suggestions. Withdrawal of this formal objections is requested.

Claim 27 is rejected under 35 U.S.C. 112, second paragraph as allegedly being indefinite.

Claim 27 has been amended in a manner which is believed to overcome the Examiner's formal objection.

Claims 24-29 and 33-37 are rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter.

The Examiner is requested to reconsider this rejection in view of the discussion hereinabove relating to element "426" of Fig. 11.

Claims 24-40 are rejected under 35 U.S.C. 102(b) as allegedly being anticipated by Muller or in the alternative as being unpatentable under 35 U.S.C. §103(a) over Muller in combination with Danino.

Applicants respectfully traverse these rejections.

The Examiner clearly believes that the word "substantially" does not preclude the tubular rivet portion of the head of the Muller element being considered to have "substantially the same diameter" as the shaft portion. Applicants urge that this belief by the Examiner is in error.

The present invention must clearly be seen in the provision of the tubular element with the rounded outer edge of the head part for punching and drawing and the design of the inner edge as a cutting surface, i.e. the conical cutting surface, such as 426 in Fig. 11.

The functional elements shown in the prior art references US 3,686,914 and EP0028109 are both fitted into pre-pierced pieces of sheet metal, that is to say they are not required to pierce the sheet metal themselves. Applicants urge that it must be considered extremely surprising that a tubular element with a wall, which is sufficiently thin to produce an annular fold, such as 52 in Fig. 5, still has sufficient strength to pierce through a sheet metal part and to be reshaped to form a proper rivet flange, and indeed that it is possible to form both a double fold in the rivet flange and a rivet bead on the other side of the panel from the tubular part of the functional element without the tubular part collapsing in an indeterminate manner.

It is noted that the European patent examiner has granted applicants a patent in Europe based on this surprising affect.

Applicants do not accept the Examiner's objection based on obviousness. The mere fact that the two prior art document both require the sheet metal component to be previously pierced, and indeed use a fitting technique which actually involves a central guiding pin (for example the pin 4 in EP0028019) shows that the inventors of these documents were convinced that it was necessary to preform a hole in the component before fitting their functional elements to the component or panel.

Muller on the other hand provides a bolt element having a rivet section, a shaft section and flange between the rivet section and the shaft section, with the river section being able to pierce its own opening in the panel and then be deformed into a rivet head on one side of the panel. However, there is absolutely no suggestion in the Muller reference that the flange could be omitted. On the contrary, the flange is a vital element of the Muller bolt since the panel material has to be trapped between the flange and the rivet head in order to ensure a complete assembly and the flange is also the part where the features providing security against rotation are located, so that the bolt does not turn relative to the panel when a nut is screwed onto the bolt or when the nut is undone from the bolt.

Muller did not appreciate that one could make the tubular rivet section longer and deform it to form both a flange and a rivet bead. Thus, we have a situation where each of the prior art teachings is a complete teaching in its own right and there was no motivation for the person skilled in the art to combine the teachings and arrive at the present invention.

It is believed that all of the present claims are in condition for allowance. The Examiner is requested to reconsider and withdraw all of the rejections made in the Official Action. Early and favorable action by the Examiner is earnestly solicited.

AUTHORIZATION

If the Examiner believes that issues may be resolved by telephone interview, the Examiner is respectfully urged to telephone the undersigned at (212) 801-2146. The undersigned may also be contacted by e-mail at ecr@gtlaw.com.

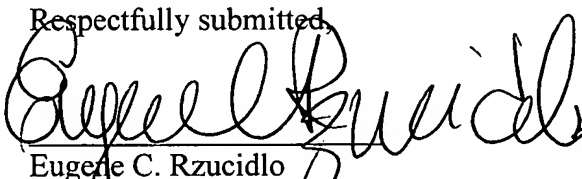
No additional fee is believed to be necessary. The Commissioner is hereby authorized to charge any additional fees which may be required for this amendment, or credit any overpayment to Deposit Account No. 50-1561.

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. 50-1561.

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Respectfully submitted,

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